
Suisun Marsh Monitoring Program Channel Water Salinity Report

Reporting Period: October 2006

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1. SUISUN MARSH MONITORING STATIONS AND REPORTING REQUIREMENT

As per SWRCB Water Rights Decision 1641, dated December 29, 1999, and previous SWRCB decisions, the California Department of Water Resources (DWR) is required to provide monthly channel water salinity compliance reports for the Suisun Marsh to the SWRCB. Conditions of channel water salinity in the Suisun Marsh are determined by monitoring specific electrical conductivity, which is referred as "specific conductance" (SC). The locations of all listed stations are shown in Figure 5.

The monthly reports are submitted for October through May each year in accordance with SWRCB requirements. The reports are required to include salinity data from the stations listed below to ensure salinity standards are met to protect habitat for waterfowl in managed wetlands:

Station Identification	Station Name	General Location	Classification
C-2*	Collinsville	Western Delta	Compliance Station
S-64	National Steel	Eastern Suisun Marsh	Compliance Station
S-49	Beldon's Landing	North-Central Suisun Marsh	Compliance Station
S-42	Volanti	North-Western Suisun Marsh	Compliance Station
S-21	Sunrise	North-Western Suisun Marsh	Compliance Station

Data from the stations listed below are included in the monthly reports to provide information on salinity conditions in the western Suisun Marsh.

Station Identification	Station Name	General Location	Classification
S-97	Ibis	Western Suisun Marsh	Monitoring Station
S-35	Morrow Island	South-Western Suisun Marsh	Monitoring Station

Information on Delta outflow, area rainfall, and operation of the Suisun Marsh Salinity Control Gates are also included in the monthly reports to provide information on conditions that may affect channel water salinity in the Marsh.

* Throughout the report, the representative data from nearby USBR station is used in lieu of data from station C-2.

2. Monitoring Results

2.1 Channel Water Salinity Compliance

During the month of October, 2006, salinity conditions at all five compliance stations are in compliance with channel water salinity standards of SWRCB (Table 1). Compliance with standards for the month of October was determined for each compliance station by comparing the progressive daily mean of high-tide SC with respective standards. The standard for compliance stations C-2, S-64, S-49, S-42 and S-21 are 19.0 mS/cm during October 2006. Table 1 lists monthly mean high-tide SC at these compliance stations. The progressive daily mean (PDM) is the monthly average of both daily high-tide SC values. The mathematical equation is shown below.

$$\text{PDM} = \frac{\sum \text{daily average of high tide SC}}{\text{\# days of the month}}$$

2.2 Delta Outflow

Outflow for October 2006 was typical for this time of year. The range was between 6,00 and 7,000 cfs at the beginning of the month and continued until mid-October, where outflow began to drop and continues to do so gradually for the remaining month. The fluctuation in outflow is a result of fluctuating upstream releases of Sacramento river. The monthly Delta outflow is represented by the mean Net Delta Outflow Index (NDOI). The NDOI is the estimated daily average of Delta outflow. Mean NDOI for October 2006 is listed below:

Month	Mean NDOI (cubic feet per second)
October	4,507

2.3 Rainfall

October 2006 was a dry month. The only October rainfall event occurred on October 5, 2006, with a total of 0.12 inches for the day and also for the month.

Month	Total Rainfall (inches)
October	0.12

2.4 Suisun Marsh Salinity Control Gate (SMSCG) Operations

Operations and flashboard/boat lock installations at the SMSCG during October 2006 is summarized below.

Date	Gate status	Flashboards status	Boat Lock status
October 1 – 31	Open	Out	Closed

There were no needs of SMSCG operation for the month of October because salinity levels throughout the marsh was not of concern. However, DWR will continue to monitor salinity levels in the marsh and will operate the gates and install the flashboards if conditions warrant.

3. Discussion

3.1 Factors Affecting Channel Water Salinity in the Suisun Marsh

Factors that affect channel water salinity levels in the Suisun Marsh include:

- delta outflow;
- tidal exchange;
- rainfall and local creek inflow;
- managed wetland operations; and,
- operation of the SMSCG and flashboard configurations.

3.2 Observations and Trends

3.2.1 Conditions during the Reporting Period

During October 2006 PDM salinity levels at Collinsville(C-2), National Steel(S-64), Beldons (S-49), and Volanti(S-42) were all below 12.0 mS/cm as shown in Figure 1. Salinity levels at all compliance stations started off October below 9.0 mS/cm and slightly increase at the end of the month, but the increase was still well below the monthly standard of 19.0 mS/cm. At the two monitoring stations, S-35 and S-97, salinity levels started off about 11.0 mS/cm and inched up at the end of the month to about 13 mS/cm.

Overall, salinity levels in October 2006 were well below standards at all compliance and monitoring stations.

S-21 (Sunrise Club) continues to be out of service since late December 2005 due to flooded event, thus S-21 station will not be reported in future reports until further notice. The SWRCB has granted DWR to continue using S42 as a surrogate station for S21 during the 2006-2007 control season while repair work is being done at S21 site.

3.2.2 Comparison of Reporting Period Conditions with Previous Years

Monthly mean high-tide SC at the compliance and monitoring stations for October 2006 were compared with means for those months during the previous nine years (Figure 4).

Mean salinity pattern of all compliance and monitoring stations resembles that of 2005, but slightly lower in magnitude. Compared to previous nine years, October 2006 salinity levels were ranked ninth in high Specific Conductance, thus making it the month with the second lowest salinity levels.

Table 1**Monthly Mean High Tide Specific Conductance at Suisun Marsh
Water Quality Compliance Stations****October 2006**

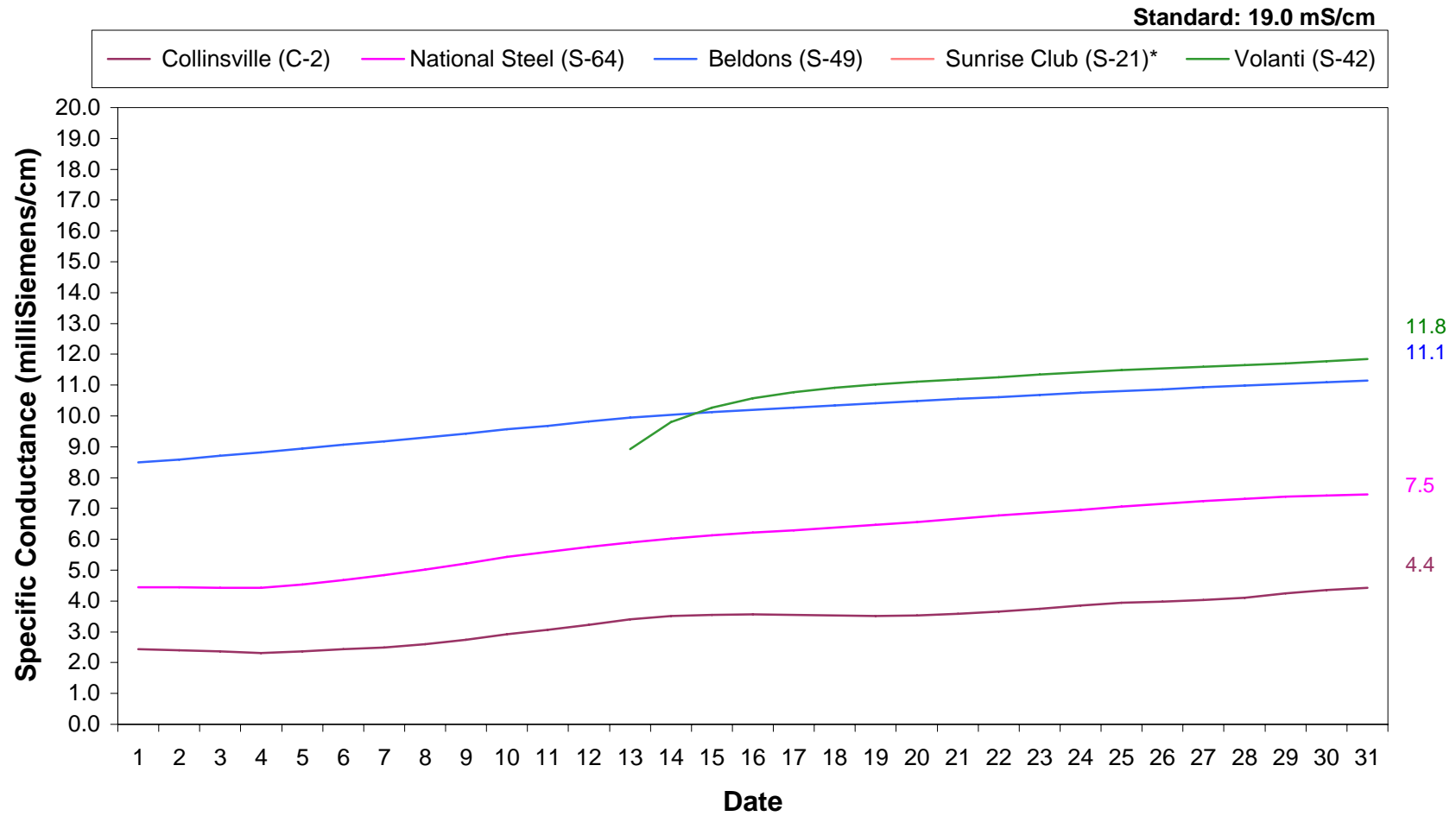
Station	Specific Conductance (mS/cm)*	Standard	Standard meet?
C-2**	4.4	19.0	Yes
S-64	7.5	19.0	Yes
S-49	11.1	19.0	Yes
S-42	11 .8	19.0	Yes
S-21***	n/a	19.0	Yes

*milliSiemens per centimeter

**The representative data from nearby USBR station is used in lieu of data from station C-2.

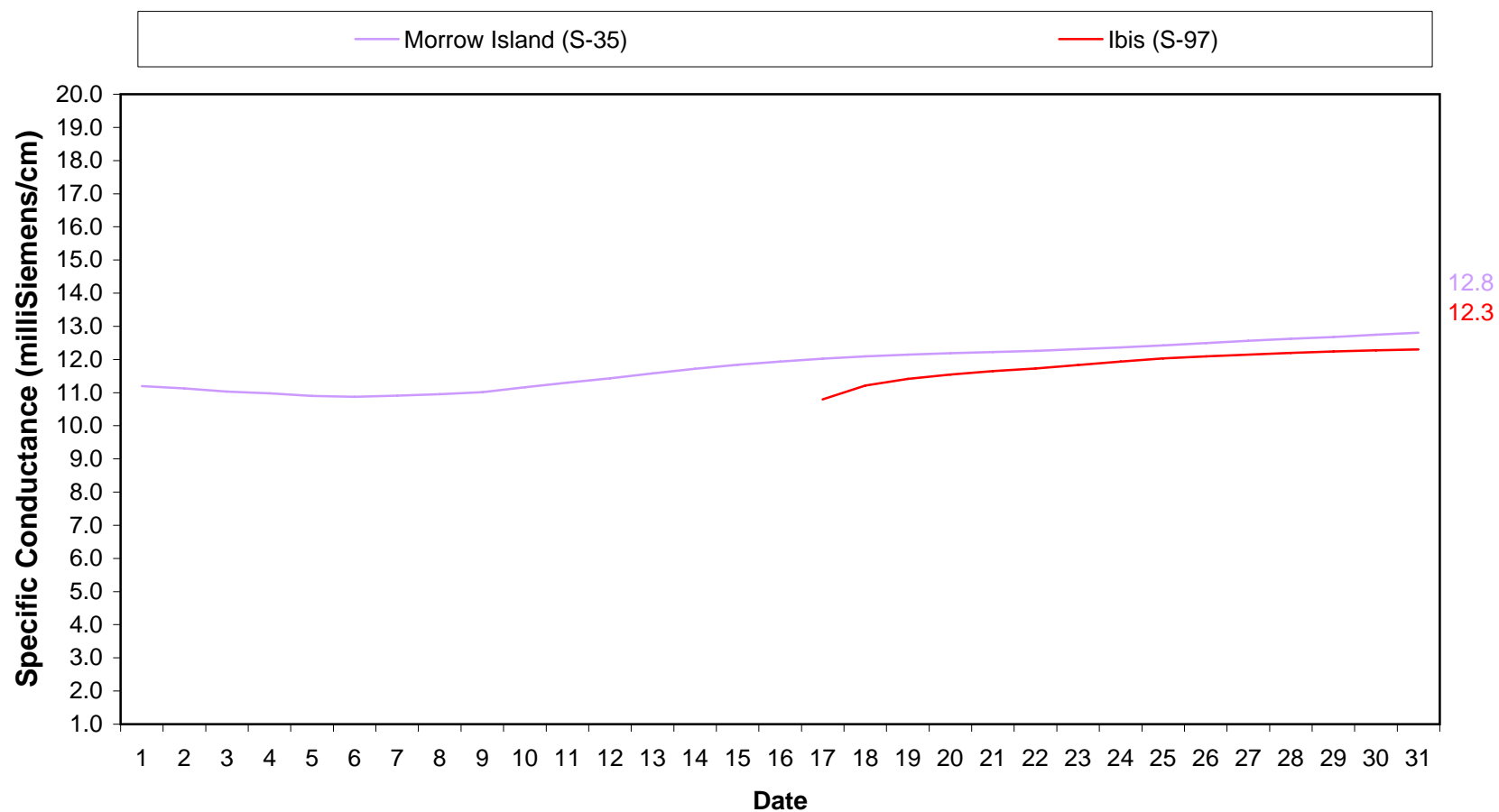
***station is temporarily out of service. The SWRCB has granted DWR to continue using S42 as a surrogate station for S21 during the 2006-2007 control season.

Figure 1. Suisun Marsh Progressive Mean High Tide Specific Conductance for October 2006

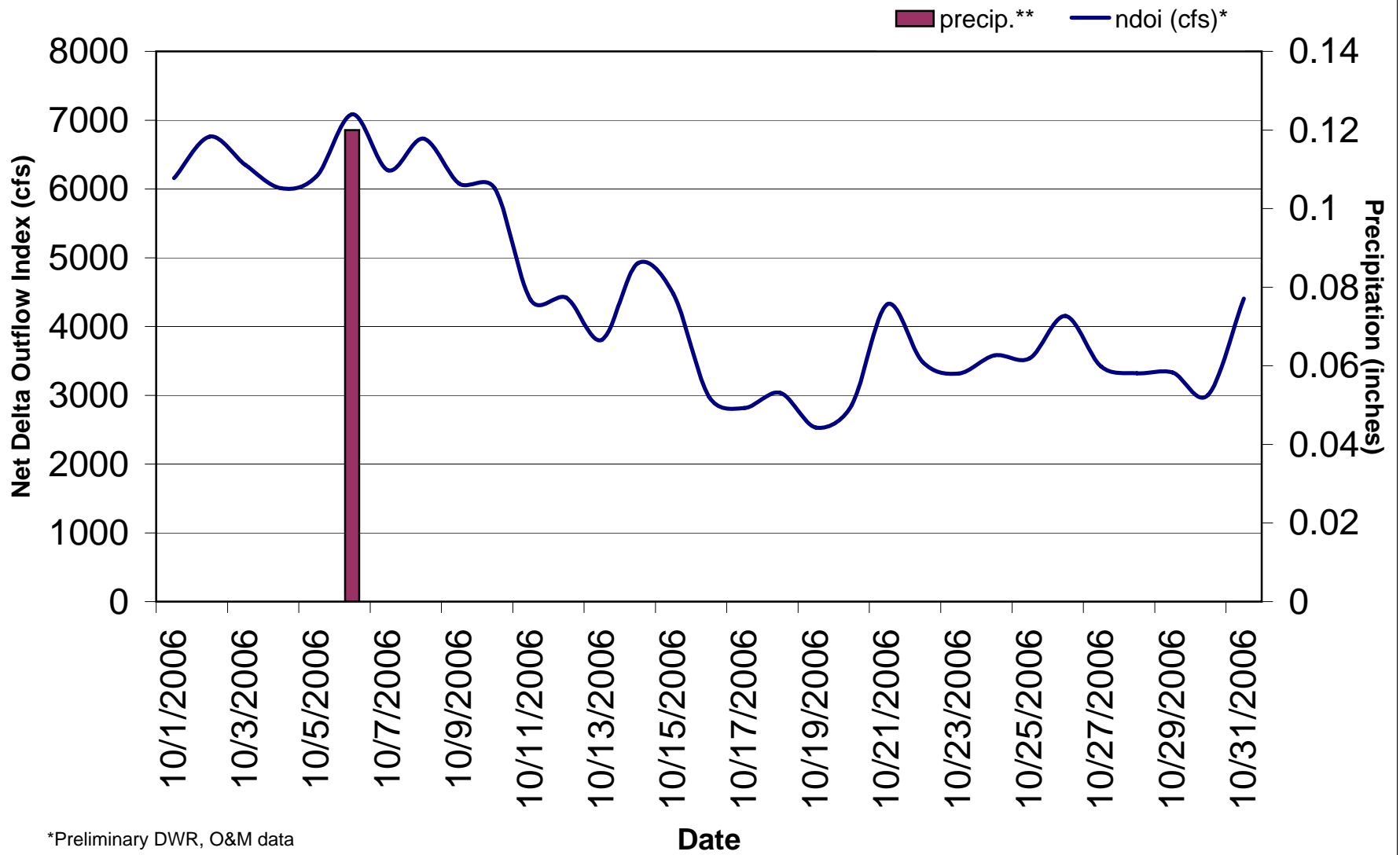


*S21 station is temporarily out of service for flood repair work.

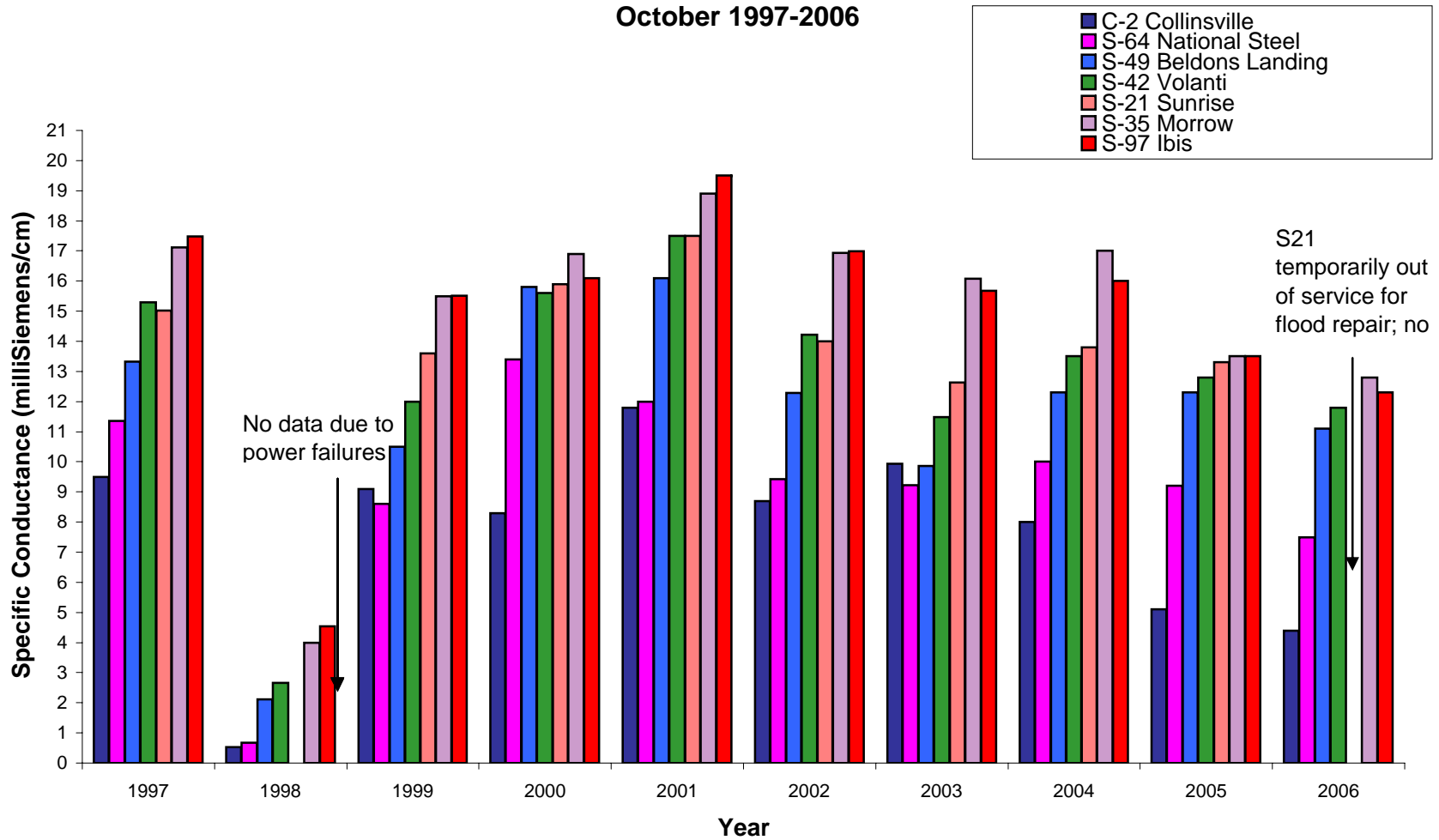
Figure 2. Suisun Marsh Progressive Mean High-Tide Specific Conductance For October 2006

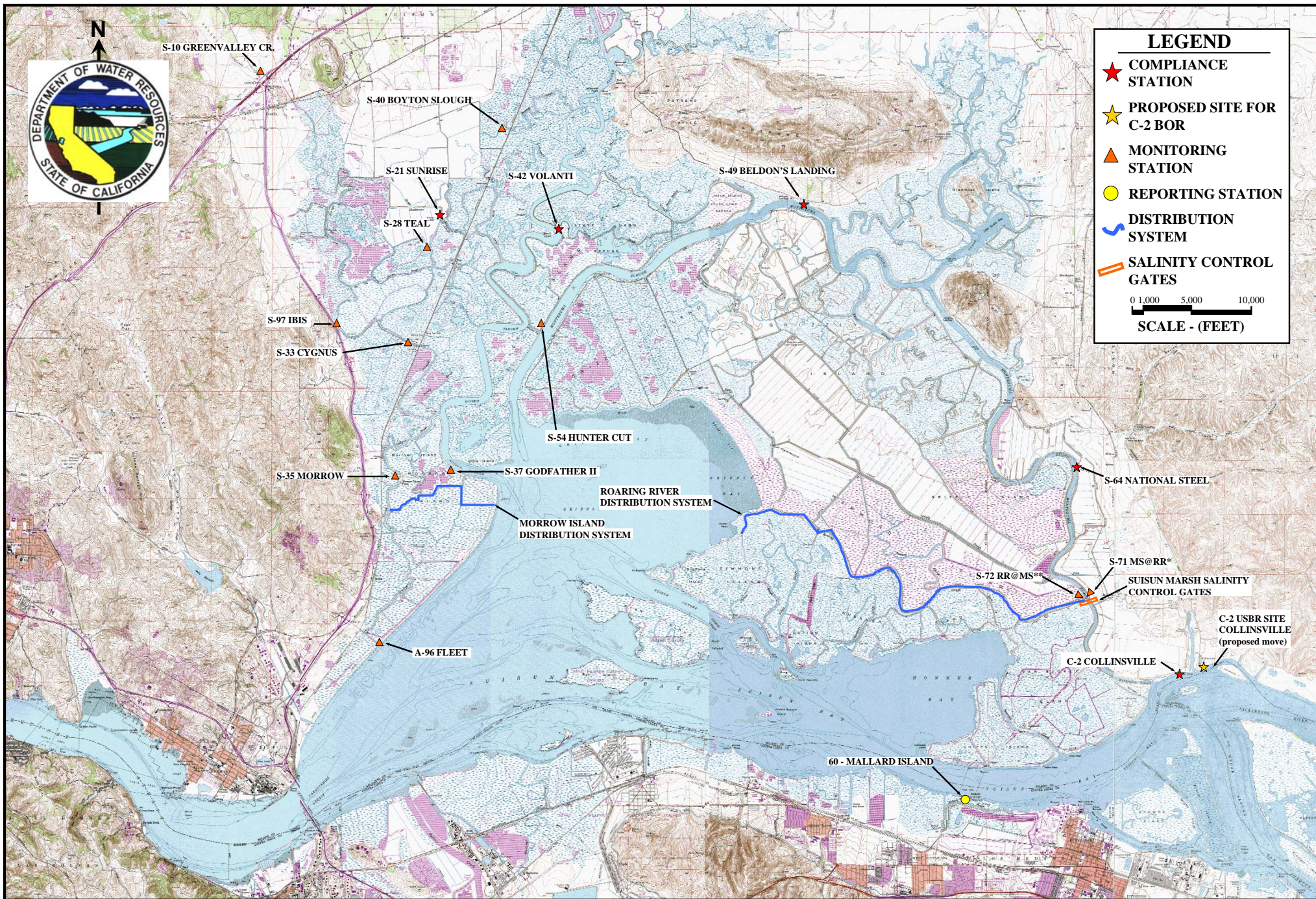


**Figure 3. Daily Net Delta Outflow Index and Precipitation
October 2006**



**Figure 4. Monthly Mean Specific Conductance at High Tide:
Comparison of Monthly Values for Selected Stations
October 1997-2006**





SUISUN MARSH PROGRAM WATER QUALITY MONITORING AND CONTROL FACILITIES